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(54)【発明の名称】　食用天然抗酸化保存剤の製造法

(57)【要約】

【目的】　生コーヒ豆から食用天然抗酸化保存剤を抽出する際に、Ｌ－アスコルビン酸系の還元剤を用いることにより白色の食用天然抗酸化保存剤を得て白色を必要とする食品にその抗酸化保存剤を添加可能にすることを目的とする。

【構成】　生コーヒ豆を、Ｌ－アスコルビン酸、あるいはＬ－アスコルビン酸ソーダ、またはＬ－アスコルビン酸とＬ－アスコルビン酸ソーダを溶解した水、温水、または熱水で抽出し、生成した抽出液を濃縮液とするか、凍結乾燥または噴霧乾燥することにより食用天然抗酸化保存剤を製造する。

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【特許請求の範囲】

【請求項1】　生コーヒ豆を、還元性物質、または還元性物質を溶解した水、温水、または熱水で抽出し、生成する抽出液を濃縮液とするか、凍結乾燥または噴霧乾燥することにより食用天然抗酸化保存剤を製造することを特徴とする食用抗酸化保存剤の製造法。

【請求項2】　前記還元性物質を、L－アスコルビン酸、あるいはL－アスコルビン酸ソーダ、またはL－アスコルビン酸とL－アスコルビン酸ソーダの溶解体としたことを特徴とする食用天然抗酸化保存剤の製造法。

【発明の詳細な説明】

【0001】

【産業上の利用分野】本発明は、油脂食品または油脂含有食品中の油脂の酸化を長期に亘って防止して食品の長期保存を可能にさせる食用天然抗酸化保存剤に係り、詳しくは白色を必要とする食品に用いてもその食品の商品価値を落とすことなく保存可能な食用天然抗酸化保存剤の製造法に関する。

【0002】

【従来の技術】従来、食用天然抗酸化保存剤の製造法に関して、本願発明の発明者による特公昭59－1465号公報、及び特公昭61－30549号公報に記載された「食用天然抗酸化物質の製造法」がある。上記特公昭59－1465号公報に記載された「食用天然抗酸化物質の製造法」によれば、生コーヒー豆の酵素分解による抽出物を有効成分とするもので、生コーヒー豆粉の水性スラリーを蛋白質分解酵素、あるいは繊維素分解酵素の存在下で処理し、その水性抽出物を濃縮して濃厚溶液とするか、凍結乾燥または噴霧乾燥するものである。また、特公昭61－30549号公報に記載された「食用天然抗酸化物質の製造法」によれば、生コーヒー豆粉を還流下に水抽出する際に抽出溶媒として水のみ、あるいは塩基性の水を用いたものである。

【0003】

【発明が解決しようとする課題】上記従来の「食用天然抗酸化物質の製造法」によれば、生コーヒー豆中に含まれているクロロゲン酸、タンニンが抽出操作中に水、空気と接触し、徐々に酸化するため、抽出液は灰黄色、褐色に変化し、この抽出液を粉末化すれば更に着色度が強くなる。そのため、白色を必要とする食品に上記従来の製造法により得られた食用天然抗酸化物質を添加すれば、若干の着色のため著しく商品価値を低下させてしまうという問題がある。そこで本発明では、生コーヒ豆から食用天然抗酸化保存剤を抽出する際に、還元性物質例えば、L－アスコルビン酸系の還元剤を用いることにより白色の食用天然抗酸化保存剤を得るようにして白色を必要とする食品に添加可能にすることを解決すべき技術的課題とするものである。

【0004】

【課題を解決するための手段】上記課題解決のための技術的手段は、生コーヒ豆を、還元性物質、例えばL－アスコルビン酸、あるいはL－アスコルビン酸ソーダ、またはL－アスコルビン酸とL－アスコルビン酸ソーダを溶解した水、温水、または熱水で抽出し、生成する抽出液を濃縮液とするか、凍結乾燥または噴霧乾燥することにより食用天然抗酸化保存剤を製造することである。

【0005】

【作用】生コーヒ豆の水抽出物は全て有機物であり、L－アスコルビン酸、L－アスコルビン酸ソーダはそれぞれ酸性、中性で有機物質の強力な還元剤である。尚、上記L－アスコルビン酸は食品添加物として厚生省より許可されており、弱い抗酸化性能を有する物質である。生コーヒ豆の水抽出物にはクロロゲン酸、カフェイン、カフェイン酸、クマール酸、フェルラ酸、タンニン、ペプチド、アミノ酸などが含まれている。尚、これらのうちクロロゲン酸は一般にカフェイン酸と結合している。上記抽出物の物質中にはフェノール系、ポリフェノール系が含まれている。抽出成分であるクロロゲン酸、タンニンは、空気、水で極めて酸化され易く、このため抽出液は褐変する。この酸化作用を防止するため抽出液に前出のL－アスコルビン酸系を微量添加した溶媒で生コーヒ豆を抽出すれば、抽出液は褐変されない。

【0006】上記酸化防止作用の理由として、以下の2点が挙げられる。

（1）L－アスコルビン酸、及びL－アスコルビン酸ソーダは有機物質の強力な還元剤であるため、クロロゲン酸、タンニンの酸化を防止する。

（2）生コーヒ豆より水抽出される物質の中にはフェノール系、ポリフェノール系の物質が存在するので、L－アスコルビン酸の分解を防止することから、安定した還元力を維持する。

従って、本発明の方法により得られた抽出液を乾燥すれば殆ど白色に近い粉末製品が得られる。従って、特公昭61－30549号公報に記載された「食用天然抗酸化物質の製造法」の実施例1で示している脱色行程、即ち活性炭、樹脂吸着剤等の使用による脱色行程は不必要になる。また、本発明の方法により得られた食用天然抗酸化保存剤の抗酸化効果は、特公昭59－1465号公報、及び特公昭61－30549号公報に記載された「食用天然抗酸化物質」の抗酸化効果を上回ることがあっても下回ることはない。

【0007】次に、本発明の実施例を説明する。

【実施例1】生コーヒ豆200gを粉砕し、水約800mlに、生コーヒ豆に対し約0．3～0．5％（wt）のL－アスコルビン酸、またはL－アスコルビン酸ソーダ、あるいはL－アスコルビン酸とL－アスコルビン酸ソーダの混合物を添加して溶解した溶媒で40～45℃程の条件で生コーヒ豆の成分を抽出する。その抽出液を沪過し清浄な沪液を濃縮して凍結乾燥または噴霧乾燥をすることにより約45～50gの白色粉末製品が得られ

る。この白色粉末製品の全窒素分析値は2．24～2．50%である。尚、上記溶媒を100～150℃の高温、高圧の条件で実施しても上記同様の白色粉末製品が得られるが、工業的利益を考慮すれば、40～45℃程の条件が望ましい。上記白色粉末製品の分析により検出された酸成分はクロロゲン酸、カフェイン酸、クマール酸、フェルラ酸、アミノ酸などであり、その他はカフェイン、タンニン、ペプチドなどである。尚、アミノ酸組成は表1の通りである。

【0008】

【表1】

アミノ酸組成（g／100g）

ASP	0．59	MET	0．08
THR	0．14	TSO	0．15
SER	0．28	IEU	0．43
GLU	0．99	TYR	0．16
PRO	——	PHE	0．35
GLY	0．30	LYS	0．23
ALA	0．31	HIS	0．15
CYS	——	ARG	0．50
VAL	0．24	NH3	0．15

*【0009】

【実施例2】次に、前記実施例1で得た生コーヒ豆の抽出物の抗酸化力をロダン鉄法により市販のブチルヒドロキシアニソール（B．H．A）、トコフェロールと比較し、それぞれの誘導期間を測定した。その測定結果を表2に示す。

【0010】

【表2】

*

抗酸化剤＼誘導期間（日）	3	7	24	38	60	79	114	143
コントロール	0．38	0．53	——	——	——	——	——	——
本発明の抽出物	0.065	0.070	0.109	0.156	0.163	0.169	0.250	0.311
B．H．A	0.010	0.018	0.078	0.137	0.207	0.262	0.380	——
トコフェロール	0.030	0.037	0.067	0.105	0.124	0.263	0.380	——
生コーヒー豆 特公昭59－1465号公報	0.060	0.070	0.103	0.155	0.162	0.168	0.235	0.303
生コーヒー豆 特公昭61－30549号公報	0.060	0.076	0.118	0.160	0.168	0.172	0.257	0.316

表2において、コントロール試料の変敗点（0．3）に達するまでの誘導期間は約3日間弱であるのに比べて、本発明の抽出物は143日間であり、ブチルヒドロキシアニソール（B．H．A）、及びトコフェロールと比べても格段の効果を有することが判る。そして特公昭59－1465号公報、及び特公昭61－30549号公報に記載された「食用天然抗酸化物質の製造法」における抽出法に比較してもほぼ同等の効果を有することが明らかである。但し、粉末の色調は前記従来の脱色法を用いなくても白色となる。尚、特公昭61－30549号公報に記載された「食用天然抗酸化物質の製造法」の粉末を脱色操作した場合には灰黄色の粉末となる。

【0011】

【実施例3】次に、前記実施例1で得た粉末状の生コー※ヒ豆抽出物を実際にビスケット製造に用いた場合の抗酸化効果（保存効果）を説明する。小麦粉500g、抗酸化剤無添加のラード油300g、蔗糖200g、食塩2．5g、重炭酸ナトリウム2．5g、炭酸アンモニウム2．5に対し水100gの割合で混合し、混練して生地を作り、その生地に抗酸化剤として

（1）実施例1で得た生コーヒ豆の抽出物

（2）市販のブチルヒドロキシアニソール（B．H．A）

（3）市販のトコフェロールのそれぞれを2%づつ添加して試料を調整した。調整された生地試料は直径4cm、厚さ0．3cmに型抜きし、160℃で7分間焼き上げて製品とした。その製品を50℃の恒温槽中に保存し、経時的に試料を取り出してウエラー法により過酸化物価

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（P．O．V）を測定した。その測定結果は表3に示す通りである。

＊【0012】

＊　【表3】

（meq／kg）

抗酸化剤＼保存期間（日）	10	20	30	40
コントロール	5．31	8．05	15．03	50．45
本発明の抽出物	3．00	4．72	5．00	6．25
特公昭61－30549号公報	3．05	4．97	5．27	6．45
B．H．A	5．32	7．55	7．98	9．05
トコフェロール	4．76	6．77	9．05	19．31

表3に示すように、本発明の抽出物を油脂含有食品に実際に適用した場合は、市販の抗酸化剤を適用した場合に比べて格段に優れた抗酸化力、即ち保存力を有していることが明らかであるとともに、特公昭61－30549号公報に記載された「食用天然抗酸化物質の製造法」の抽出物と比較しても決して劣らない抗酸化力、食品保存力を有するものである。

【0013】

【実施例4】次に、前記実施例1で得た粉末状の生コーヒ豆抽出物を実際に魚類のスリ身の保存に適用した場合の抗酸化効果を示す。新鮮ないわしの頭と内臓を除き、※5％食塩水で充分洗浄して細断し、実施例1で得た粉末状の生コーヒ豆抽出物、及び市販のブチルヒドロキシアニソール（B．H．A）をそれぞれ0．2％づつ添加して試料を調整した。各試料は通常の方法で良く混練して10g／個のいわしスリ身団子として形成した。それぞれのいわしスリ身団子を－15℃に冷凍し、経時的に試料を取り出してウエラー法により過酸化物価（P．O．V）（meq／Kg）と酸価（A．V）を測定した。その測定結果は表4に示す通りである。

【0014】

【表4】

抗酸化剤＼保存日数／測定	7		14		21	
	P.O.V	A.V	P.O.V	A.V	P.O.V	A.V
コントロール	3．92	1．46	9．13	2．67	21.52	3．62
本発明の抽出物	0．78	1．43	2．66	1．76	7．00	2．35
特公昭61－30549号公報	0．95	1．46	2．80	1．88	7．25	2．43
B．H．A	2．81	1．61	7．16	2．30	10.81	2．82

表4に示すように、本発明の抽出物を魚類食品に実際に適用した場合は、市販の抗酸化剤を適用した場合に比べて鮮魚の油焼けに対して格段に優れた抗酸化力を有していることが明らかであるとともに、特公昭61－30549号公報に記載された「食用天然抗酸化物質の製造法」の抽出物と比較しても決して劣らない抗酸化力を有するものである。

【0015】

【発明の効果】以上のように本発明によれば、生コーヒ豆抽出物の褐変現象を、L－アスコルビン酸系の還元作★用と生コーヒ豆抽出物質中のフェノール系、ポリフェノール系などによるL－アスコルビン酸の分解の安定化を利用して防止することができるため殆ど無色の抽出液が得られ、その抽出液から白色粉末状の食用天然抗酸化保存剤が得られるため、白色を必要とする食品に添加しても商品価値を損なうことなく長期保存を可能にする。

尚、特公昭61－30549号公報に記載された「食用天然抗酸化物質の製造法」による抗酸化物質の抗酸化性能と比較して優るとも劣ることはない。

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ABSTRACT:

PURPOSE: To obtain a white natural antioxidation preservative for food by using an L-ascorbic acid reducing agent derived from raw coffee beans.

CONSTITUTION: The objective natural antioxidation preservative for food is produced by extracting raw coffee beans with water, warm water or hot water containing dissolved L-ascorbic acid, sodium Lascorbate or L-ascorbic acid and sodium L-ascorbate and concentrating the obtained extract or drying the extract by freeze-drying or spray-drying.

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(54) PRODUCTION OF NATURAL ANTIOXIDATION PRESERVATIVE FOR FOOD

(57)Abstract:

PURPOSE: To obtain a white natural antioxidation preservative for food by using an L-ascorbic acid reducing agent derived from raw coffee beans.

CONSTITUTION: The objective natural antioxidation preservative for food is produced by extracting raw coffee beans with water, warm water or hot water containing dissolved L-ascorbic acid, sodium Lascorbate or L-ascorbic acid and sodium L-ascorbate and concentrating the obtained extract or drying the extract by freeze-drying or spray-drying.

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JAPANESE [JP,05-236918,A]

CLAIMS DETAILED DESCRIPTION TECHNICAL FIELD PRIOR ART EFFECT OF THE INVENTION TECHNICAL PROBLEM MEANS OPERATION

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CLAIMS

[Claim(s)]
[Claim 1] The manufacturing method of the edible antioxidation preservative which extracts raw coffee beans with the water which dissolved the reducibility matter or the reducibility matter, warm water, or hot water, and is characterized by using the extract to generate as concentration liquid, or manufacturing an edible natural antioxidation preservative freeze drying or by carrying out spray drying.
[Claim 2] The manufacturing method of the edible natural antioxidation preservative characterized by using said reducibility matter as the dissolution object of L-ascorbic acid, L-ascorbic acid soda, or L-ascorbic acid and L-ascorbic acid soda.

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DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[Industrial Application] This invention relates to the edible natural antioxidation preservative which it continues [preservative], and oxidation of the fats and oils in fats-and-oils food or fats-and-oils content food is prevented [preservative] at a long period of time, and makes the mothball of food possible, and it relates to the manufacturing method of the edible natural antioxidation preservative which can be saved, without lowering the commodity value of the food, even if it uses for the food which needs white in detail.
[0002]
[Description of the Prior Art] Conventionally, there is "a manufacturing method of an edible natural antioxidant" indicated by JP,59-1465,B by the artificer of the invention in this application and JP,61-30549,B about the manufacturing method of an edible natural antioxidation preservative. According to the "manufacturing method of an edible natural antioxidant" indicated by above-mentioned JP,59-1465,B, the extract by the zymolysis of raw coffee beans is made into an active principle, and the aquosity slurry of raw coffee-beans powder is processed under existence of a proteolytic enzyme or a fibrin dialytic ferment, the aquosity extract is condensed, and it considers as a thick solution, or they are freeze drying or the thing which carries out spray drying. Moreover, according to the "manufacturing method of an edible natural antioxidant" indicated by JP,61-30549,B, in case the water extract of the raw coffee-beans powder is carried out under reflux, only water uses basic water as an extracting solvent.
[0003]
[Problem(s) to be Solved by the Invention] In order that according to the above-mentioned conventional "manufacturing method of an edible natural antioxidant" the chlorogenic acid and tannin which are contained in raw coffee beans may contact water and air into extract operation and may oxidize gradually, an extract changes to ashes yellow and brown, and if disintegration of this extract is carried out, whenever [coloring] will become strong further. Therefore, if the edible natural antioxidant obtained according to the above-mentioned conventional manufacturing method by the food which needs white is added, there is a problem of reducing commodity value remarkably for some coloring. So, in this invention, in case you extract an edible natural antioxidation preservative from raw coffee beans, let it to enable addition for the food which needs white as obtains a white edible natural antioxidation preservative be the technical technical problem which should be solved by using the reducibility matter, for example, the reducing agent of a L-ascorbic acid system.
[0004]
[Means for Solving the Problem] The technical means for the above-mentioned technical-problem solution extract raw coffee beans with the water which dissolved the reducibility matter, for example, L-ascorbic acid, L-ascorbic acid soda, or L-ascorbic acid and L-ascorbic acid soda, warm water, or hot water, and are using the extract to generate as concentration liquid, or manufacturing an edible natural antioxidation preservative freeze drying or by carrying out spray drying.
[0005]

[Function] All the water extracts of raw coffee beans are the organic substance, and L-ascorbic acid and L-ascorbic acid soda are the powerful reducing agents of an organic substance by acidity and neutrality, respectively. In addition, the above-mentioned L-ascorbic acid is permitted by the Ministry of Health and Welfare as a food additive, and is matter which has the weak antioxidation engine performance. Chlorogenic acid, caffeine, a caffeine acid, a bear-RU acid, ferulic acid, tannin, a peptide, amino acid, etc. are contained in the water extract of raw coffee beans. In addition, generally chlorogenic acid is combined with the caffeine acid among these. The phenol system and the polyphenol system are contained in the matter of the above-mentioned extract. The chlorogenic acid and tannin which are an extract component tend [very] to oxidize with air and water, and, for this reason, an extract browns. If the solvent which carried out minute amount addition of the above-mentioned L-ascorbic acid system extracts raw coffee beans to an extract in order to prevent this oxidation, an extract will not brown.
[0006] The following two points are mentioned as a reason of the above-mentioned antioxidizing operation.
(1) Since L-ascorbic acid and L-ascorbic acid soda are the powerful reducing agents of an organic substance, they prevent oxidation of chlorogenic acid and tannin.
(2) Since the matter of a phenol system and a polyphenol system exists in the matter by which a water extract is carried out from raw coffee beans, maintain the stable reducing power from preventing decomposition of L-ascorbic acid.
Therefore, if the extract obtained by the approach of this invention is dried, the powder product almost near white will be obtained. Therefore, the decolorization stroke by the activity of the decolorization stroke shown in the example 1 of "the manufacturing method of an edible natural antioxidant" indicated by JP,61-30549,B, i.e., activated carbon, a resin adsorbent, etc. becomes unnecessary. Moreover, even if it may exceed the antioxidation effectiveness of the "edible natural antioxidant" indicated by JP,59-1465,B and JP,61-30549,B, it is not less than the antioxidation effectiveness of the edible natural antioxidation preservative obtained by the approach of this invention.
[0007] Next, the example of this invention is explained.
[Example 1] 200g of raw coffee beans is ground, and the solvent which added the mixture of about 0.3 - 0.5% (wt) of L-ascorbic acid, L-ascorbic acid soda, or L-ascorbic acid and L-ascorbic acid soda to 800ml of ****, and dissolved in them to raw coffee beans extracts the component of raw coffee beans on about 40-45-degree C conditions. An about 45-50g white powder product is obtained by filtering the extract, condensing pure filtrate and carrying out freeze drying or spray drying. The total nitrogen analysis value of this white powder product is 2.24 - 2.50%. In addition, even if it carries out the above-mentioned solvent a 100-150-degree C elevated temperature and on condition that high voltage, the same white powder product as the above is obtained, but if a industrial profit is taken into consideration, about 40-45-degree C conditions are desirable. The acid components detected by analysis of the above-mentioned white powder product are chlorogenic acid, a caffeine acid, a bear-RU acid, ferulic acid, amino acid, etc., and others are caffeine, tannin, a peptide, etc. In addition, amino acid composition is as in a table 1.
[0008]
[A table 1]

アミノ酸組成（g／100g）

ASP	0. 59	MET	0. 08
THR	0. 14	TSO	0. 15
SER	0. 28	IEU	0. 43
GLU	0. 99	TYR	0. 16
PRO	——	PHE	0. 35
GLY	0. 30	LYS	0. 23
ALA	0. 31	HIS	0. 15
CYS	——	ARG	0. 50
VAL	0. 24	NH3	0. 15

[0009]
[Example 2] Next, each induction period was measured as compared with the burylhydroxyanisole (B. H.A) of marketing of the antioxidative activity of the extract of the raw coffee beans obtained in said example 1 by the rhodan iron method, and a tocopherol. The measurement result is shown in a table 2.
[0010]
[A table 2]

誘導期間（日） / 抗酸化剤	3	7	24	38	60	79	114	143
コントロール	0. 38	0. 53	——	——	——	——	——	——
本発明の抽出物	0.065	0.070	0.109	0.156	0.163	0.169	0.250	0.311
B. H. A	0.010	0.018	0.078	0.137	0.207	0.262	0.380	——
トコフェロール	0.030	0.037	0.067	0.105	0.124	0.263	0.380	——
生コーヒー豆 特公昭59－1465号公報	0.060	0.070	0.103	0.155	0.162	0.168	0.235	0.303
生コーヒー豆 特公昭61－30549号公報	0.060	0.076	0.118	0.160	0.168	0.172	0.257	0.316

In a table 2, compared with an induction period until it reaches the deterioration point (0.3) of a control sample being weakness for about three days, the extract of this invention is for 143 days, and even if compared with burylhydroxyanisole (B. H.A) and a tocopherol, it turns out that it has marked effectiveness. And even if it compares with the extraction method in "the manufacturing method of an edible natural antioxidant" indicated by JP,59-1465,B and JP,61-30549,B, it is clear to have almost equivalent effectiveness. However, even if a powdered color tone does not use said conventional decolorizing method, it becomes white. In addition, when decolorization actuation of the powder of "the manufacturing method of an edible natural antioxidant" indicated by JP,61-30549,B is carried out, it becomes the powder of ashes yellow.
[0011]
[Example 3] Next, the antioxidation effectiveness (the preservation effectiveness) at the time of using actually for biscuit manufacture the raw coffee-beans extract of the shape of powder acquired in said example 1 is explained. Burylhydroxyanisole of extract (2) marketing of the raw coffee beans which mixed and kneaded at a rate of 100g of water to 500g of wheat flour, 300g of anti-oxidant additive-free lard oil, 200g of sucrose, 2.5g of salt, 2.5g of sodium bicarbonate, and an ammonium carbonate 2.5, made the ground, and were obtained in the (1) example 1 as an anti-oxidant to the ground (B. H.A)

(3) Each of a commercial tocopherol was added by a unit of 2%, and the sample was adjusted. the adjusted ground -- mold omission of the sample was carried out to 0.3cm in the diameter of 4cm, and thickness, and it was roasted for 7 minutes at 160 degrees C, and was used as the product. the product -- the inside of a 50-degree C thermostat -- saving -- with time -- a sample -- taking out -- Weller -- the peroxide number (P. O.V) was measured by law. The measurement result is as being shown in a table 3.
[0012]
[A table 3]

(meq/kg)

保存期間 (日) / 抗酸化剤	10	20	30	40
コントロール	5. 31	8. 05	15. 03	50. 45
本発明の抽出物	3. 00	4. 72	5. 00	6. 25
特公昭61－30549号公報	3. 05	4. 97	5. 27	6. 45
B. H. A	5. 32	7. 55	7. 98	9. 05
トコフェロール	4. 76	6. 77	9. 05	19. 31

while it is clear to have the antioxidative activity which was markedly alike and was excellent compared with the case where a commercial anti-oxidant is applied, i.e., conservative force, when the extract of this invention is actually applied to fats-and-oils content food as shown in a table 3, it has the antioxidative activity and the food preservation force which are never inferior even if it compares with the extract of "the manufacturing method of an edible natural antioxidant" indicated by JP,61-30549,B.
[0013]
[Example 4] next, the raw coffee-beans extract of the shape of powder acquired in said example 1 -- actual -- the pickpocket of fishes -- the antioxidation effectiveness at the time of applying to preservation of the body is shown.

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TECHNICAL FIELD

[Industrial Application] This invention relates to the edible natural antioxidation preservative which it continues [preservative], and oxidation of the fats and oils in fats-and-oils food or fats-and-oils content food is prevented [preservative] at a long period of time, and makes the mothball of food possible, and it relates to the manufacturing method of the edible natural antioxidation preservative which can be saved, without lowering the commodity value of the food, even if it uses for the food which needs white in detail.

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PRIOR ART

[Description of the Prior Art] Conventionally, there is "a manufacturing method of an edible natural antioxidant" indicated by JP,59-1465,B by the artificer of the invention in this application and JP,61-30549,B about the manufacturing method of an edible natural antioxidation preservative. According to the "manufacturing method of an edible natural antioxidant" indicated by above-mentioned JP,59-1465,B, the extract by the zymolysis of raw coffee beans is made into an active principle, and the aquosity slurry of raw coffee-beans powder is processed under existence of a proteolytic enzyme or a fibrin dialytic ferment, the aquosity extract is condensed, and it considers as a thick solution, or they are freeze drying or the thing which carries out spray drying. Moreover, according to the "manufacturing method of an edible natural antioxidant" indicated by JP,61-30549,B, in case the water extract of the raw coffee-beans powder is carried out under reflux, only water uses basic water as an extracting solvent.

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EFFECT OF THE INVENTION

The (preservation effectiveness) is explained. Burylhydroxyanisole of extract (2) marketing of the raw coffee beans which mixed and kneaded at a rate of 100g of water to 500g of wheat flour, 300g of anti-oxidant additive-free lard oil, 200g of sucrose, 2.5g of salt, 2.5g of sodium bicarbonate, and an ammonium carbonate 2.5, made the ground, and were obtained in the (1) example 1 as an anti-oxidant to the ground (B. H.A)
(3) Each of a commercial tocopherol was added by a unit of 2%, and the sample was adjusted. the adjusted ground -- mold omission of the sample was carried out to 0.3cm in the diameter of 4cm, and thickness, and it was roasted for 7 minutes at 160 degrees C, and was used as the product. the product -- the inside of a 50-degree C thermostat -- saving -- with time -- a sample -- taking out -- Weller -- the peroxide number (P. O.V) was measured by law. The measurement result is as being shown in a table 3.
[0012]
[A table 3]

(meq/kg)

保存期間(日) / 抗酸化剤	10	20	30	40
コントロール	5. 31	8. 05	15. 03	50. 45
本発明の抽出物	3. 00	4. 72	5. 00	6. 25
特公昭61－30549号公報	3. 05	4. 97	5. 27	6. 45
B. H. A	5. 32	7. 55	7. 98	9. 05
トコフェロール	4. 76	6. 77	9. 05	19. 31

while it is clear to have the antioxidative activity which was markedly alike and was excellent compared with the case where a commercial anti-oxidant is applied, i.e., conservative force, when the extract of this invention is actually applied to fats-and-oils content food as shown in a table 3, it has the antioxidative activity and the food preservation force which are never inferior even if it compares with the extract of "the manufacturing method of an edible natural antioxidant" indicated by JP,61-30549,B.
[0013]
[Example 4] next, the raw coffee-beans extract of the shape of powder acquired in said example 1 -- actual -- the pickpocket of fishes -- the antioxidation effectiveness at the time of applying to preservation of the body is shown. Except for the head and internal organs of a fresh sardine, brine washed enough 5%, beating was carried out, the raw coffee-beans extract of the shape of powder acquired in the example 1 and commercial burylhydroxyanisole (B. H.A) were added by a unit of 0.2%, respectively, and the sample was adjusted. the approach usual in each sample -- good -- kneading -- a 10g [/piece]

sardine -- a pickpocket -- it formed as a body dumpling. each sardine -- a pickpocket -- a body dumpling -15 degrees C -- freezing -- with time -- a sample -- taking out -- Weller -- the peroxide number (P. O.V) (meq/kg) and the acid number (A. V) were measured by law. The measurement result is as being shown in a table 4.

[0014]

[A table 4]

保存日数 / 測定 / 抗酸化剤	7		14		21	
	P.O.V	A.V	P.O.V	A.V	P.O.V	A.V
コントロール	3. 92	1. 46	9. 13	2. 67	21.52	3. 62
本発明の抽出物	0. 78	1. 43	2. 66	1. 76	7. 00	2. 35
特公昭61－30549号公報	0. 95	1. 46	2. 80	1. 88	7. 25	2. 43
B. H. A	2. 81	1. 61	7. 16	2. 30	10.81	2. 82

while it is clear to have the antioxidative activity which was markedly alike and was excellent to the rancidity of a fresh fish compared with the case where a commercial anti-oxidant is applied when the extract of this invention is actually applied to fishes food as shown in a table 4, it has the antioxidative activity which is never inferior even if it compares with the extract of "the manufacturing method of an edible natural antioxidant" indicated by JP,61-30549,B.

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TECHNICAL PROBLEM

[Problem(s) to be Solved by the Invention] In order that according to the above-mentioned conventional "manufacturing method of an edible natural antioxidant" the chlorogenic acid and tannin which are contained in raw coffee beans may contact water and air into extract operation and may oxidize gradually, an extract changes to ashes yellow and brown, and if disintegration of this extract is carried out, whenever [coloring] will become strong further. Therefore, if the edible natural antioxidant obtained according to the above-mentioned conventional manufacturing method by the food which needs white is added, there is a problem of reducing commodity value remarkably for some coloring. So, in this invention, in case you extract an edible natural antioxidation preservative from raw coffee beans, let it to enable addition for the food which needs white as obtains a white edible natural antioxidation preservative be the technical technical problem which should be solved by using the reducibility matter, for example, the reducing agent of a L-ascorbic acid system.

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MEANS

[Means for Solving the Problem] The technical means for the above-mentioned technical-problem solution extract raw coffee beans with the water which dissolved the reducibility matter, for example, L-ascorbic acid, L-ascorbic acid soda, or L-ascorbic acid and L-ascorbic acid soda, warm water, or hot water, and are using the extract to generate as concentration liquid, or manufacturing an edible natural antioxidation preservative freeze drying or by carrying out spray drying.

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OPERATION

[Function] All the water extracts of raw coffee beans are the organic substance, and L-ascorbic acid and L-ascorbic acid soda are the powerful reducing agents of an organic substance by acidity and neutrality, respectively. In addition, the above-mentioned L-ascorbic acid is permitted by the Ministry of Health and Welfare as a food additive, and is matter which has the weak antioxidation engine performance. Chlorogenic acid, caffeine, a caffeine acid, a bear-RU acid, ferulic acid, tannin, a peptide, amino acid, etc. are contained in the water extract of raw coffee beans. In addition, generally chlorogenic acid is combined with the caffeine acid among these. The phenol system and the polyphenol system are contained in the matter of the above-mentioned extract. The chlorogenic acid and tannin which are an extract component tend [very] to oxidize with air and water, and, for this reason, an extract browns. If the solvent which carried out minute amount addition of the above-mentioned L-ascorbic acid system extracts raw coffee beans to an extract in order to prevent this oxidation, an extract will not brown.
[0006] The following two points are mentioned as a reason of the above-mentioned antioxidizing operation.
(1) Since L-ascorbic acid and L-ascorbic acid soda are the powerful reducing agents of an organic substance, they prevent oxidation of chlorogenic acid and tannin.
(2) Since the matter of a phenol system and a polyphenol system exists in the matter by which a water extract is carried out from raw coffee beans, maintain the stable reducing power from preventing decomposition of L-ascorbic acid.
Therefore, if the extract obtained by the approach of this invention is dried, the powder product almost near white will be obtained. Therefore, the decolorization stroke by the activity of the decolorization stroke shown in the example 1 of "the manufacturing method of an edible natural antioxidant" indicated by JP,61-30549,B, i.e., activated carbon, a resin adsorbent, etc. becomes unnecessary. Moreover, even if it may exceed the antioxidation effectiveness of the "edible natural antioxidant" indicated by JP,59-1465,B and JP,61-30549,B, it is not less than the antioxidation effectiveness of the edible natural antioxidation preservative obtained by the approach of this invention.
[0007] Next, the example of this invention is explained.
[Example 1] 200g of raw coffee beans is ground, and the solvent which added the mixture of about 0.3 - 0.5% (wt) of L-ascorbic acid, L-ascorbic acid soda, or L-ascorbic acid and L-ascorbic acid soda to 800ml of ****, and dissolved in them to raw coffee beans extracts the component of raw coffee beans on about 40-45-degree C conditions. An about 45-50g white powder product is obtained by filtering the extract, condensing pure filtrate and carrying out freeze drying or spray drying. The total nitrogen analysis value of this white powder product is 2.24 - 2.50%. In addition, even if it carries out the above-mentioned solvent a 100-150-degree C elevated temperature and on condition that high voltage, the same white powder product as the above is obtained, but if a industrial profit is taken into consideration, about 40-45-degree C conditions are desirable. The acid components detected by analysis of the above-mentioned white powder product are chlorogenic acid, a caffeine acid, a bear-RU acid, ferulic acid, amino acid, etc., and others are caffeine, tannin, a peptide, etc. In addition, amino acid composition is as in a table 1.

[0008]
[A table 1]

アミノ酸組成（g／100g）

ASP	0. 59	MET	0. 08
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SER	0. 28	IEU	0. 43
GLU	0. 99	TYR	0. 16
PRO	——	PHE	0. 35
GLY	0. 30	LYS	0. 23
ALA	0. 31	HIS	0. 15
CYS	——	ARG	0. 50
VAL	0. 24	NH3	0. 15

[0009]
[Example 2] Next, each induction period was measured as compared with the burylhydroxyanisole (B. H.A) of marketing of the antioxidative activity of the extract of the raw coffee beans obtained in said example 1 by the rhodan iron method, and a tocopherol. The measurement result is shown in a table 2.
[0010]
[A table 2]

誘導期間（日） / 抗酸化剤	3	7	24	38	60	79	114	143
コントロール	0. 38	0. 53	——	——	——	——	——	——
本発明の抽出物	0.065	0.070	0.109	0.156	0.163	0.169	0.250	0.311
B. H. A	0.010	0.018	0.078	0.137	0.207	0.262	0.380	——
トコフェロール	0.030	0.037	0.067	0.105	0.124	0.263	0.380	——
生コーヒー豆 特公昭59－1465号公報	0.060	0.070	0.103	0.155	0.162	0.168	0.235	0.303
生コーヒー豆 特公昭61－30549号公報	0.060	0.076	0.118	0.160	0.168	0.172	0.257	0.316

In a table 2, compared with an induction period until it reaches the deterioration point (0.3) of a control sample being weakness for about three days, the extract of this invention is for 143 days, and even if compared with burylhydroxyanisole (B. H.A) and a tocopherol, it turns out that it has marked effectiveness. And even if it compares with the extraction method in "the manufacturing method of an edible natural antioxidant" indicated by JP,59-1465,B and JP,61-30549,B, it is clear to have almost equivalent effectiveness. However, even if a powdered color tone does not use said conventional decolorizing method, it becomes white. In addition, when decolorization actuation of the powder of "the manufacturing method of an edible natural antioxidant" indicated by JP,61-30549,B is carried out, it becomes the powder of ashes yellow.
[0011]
[Example 3] Next, the antioxidation effectiveness at the time of using actually for biscuit manufacture the raw coffee-beans extract of the shape of powder acquired in said example 1

[Translation done.]